

Written Amendment

(Amendment in accordance with Article 11 of The Patent Law)

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4. Document to be Amended

Claims

5. Contents of Amendment

- (1) Claim 9 on page 78 was canceled.
- (2) Claim 10 on pages 78 to 79 was canceled.
- (3) Claim 11 on page 79 was canceled.
- (4) Claim 12 on page 79 was changed into the independent claim.
- (5) In Claim 22 on page 82, the description, "any one of Claims 9 through 11" was changed to "Claim 12".
- (6) Claims 46 through 49 on page 89 were added.

6. List of Attached Documents

- (1) Claims on pages 78 through 79, 82, 89 and 89/1 through 89/3.

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8. The DME fuel supply device for a diesel engine according to Claim 5, wherein the injection pump has a cam chamber in which the camshaft is placed and lubricating oil is reserved and which has an exclusive lubricating system separated from a lubricating system of the diesel engine, and wherein an oil separator for separating DME fuel from lubricating oil containing the DME fuel and a compressor driven by a cam of the camshaft for pressurizing the separated DME fuel and delivering it to the fuel tank are disposed in the cam chamber.

9. (Canceled)

10. (Canceled)

11. (Canceled)

(p.79)

12. (Amended) A DME fuel supply device for a diesel engine having an injection pump for delivering DME fuel supplied from a fuel tank via a feed pipe in a specified amount to an injection pipe in communication with a fuel injection nozzle of a diesel engine at specified timing,

the DME fuel supply device comprising:

means for cooling the injection pipe;

the injection pipe having an injection fuel passage through which the DME fuel delivered from the injection pump to the fuel injection nozzle flows and a coolant passage through which coolant for cooling the DME fuel flowing through the injection fuel passage flows and having a double pipe structure in which the coolant flows along the outer peripheral surface of the injection fuel passage,

an overflow fuel pipe for returning DME fuel overflowed from the injection pump; and

a nozzle return pipe for delivering DME fuel overflowed from the fuel injection nozzle to the overflow fuel pipe,

wherein DME fuel flows from the feed pipe to the nozzle return pipe through the coolant passage as the coolant.

13. The DME fuel supply device for a diesel engine according to Claim 12, further comprising a overflow valve disposed in the overflow pipe for maintaining the pressure in the fuel gallery in the injection pump and regulating the overflowed DME fuel to flow only in the direction of being returned to the fuel tank, wherein the nozzle return pipe is connected downstream of the overflow valve.

(p.82)

21. The DME fuel supply device for a diesel engine according to Claim 20, wherein the DME fuel supplied from the fuel tank to the fuel cooler and evaporated therein is delivered to the compressor.

22. (Amended) The DME fuel supply device for a diesel engine according to Claim 12, wherein the DME fuel delivered from the injection pipe is supplied to a common rail and delivered to the fuel injection nozzle from the common rail.

23. A DME fuel supply device for a diesel engine comprising: an injection pump for delivering DME fuel supplied from a fuel tank via a feed pipe in a specified amount to an injection pipe in communication with a fuel injection nozzle of a diesel engine at specified timing;

a supply fuel cooling unit for cooling DME fuel flowing through the feed pipe with a cooling cycle using DME fuel as coolant;

temperature detecting means for detecting the temperature of DME fuel in the injection pump; and

a supply fuel temperature control section for controlling supply fuel cooling unit to control the temperature of DME fuel flowing through the feed pipe so that the temperature of DME fuel to be delivered to the injection pipe can be constant based on the temperature of DME fuel in the injection pump detected by the temperature detecting means.

(p.89~89/3)

44. The DME fuel supply device for a diesel engine according to Claim 43, wherein the DME fuel supplied from the fuel tank to the fuel cooler and evaporated therein is delivered to the compressor.

45. The DME fuel supply device for a diesel engine according to any one of Claims 32 to 35, wherein the DME fuel delivered from the injection pipe is supplied to a common rail and delivered to the fuel injection nozzle from the common rail.

46. (Added) A pressure delivery device, provided in a DME fuel supply device for a diesel engine for supplying DME fuel from a fuel tank to an injection nozzle of the diesel engine via a fuel gallery having an overflow fuel pipe for returning the DME fuel overflowed from the fuel injection nozzle and the DME fuel overflowed from the fuel gallery to the fuel tank; and residual fuel retrieving means for retrieving the DME fuel remaining in the fuel gallery and the overflow fuel pipe after stopping the diesel engine to the fuel tank, for forcibly delivering the residual DME fuel to the residual fuel retrieving means, comprising:

- a vapor-phase pressure delivery pipe connecting the fuel gallery's inlet side of the feed pipe connecting the fuel tank and the fuel gallery with a vapor phase in the fuel tank; and

- a vapor-phase pressure delivery pipe switching solenoid valve which is provided in the vapor-phase pressure delivery pipe and which is opened after stopping the diesel engine,

whereby, when the vapor-phase pressure delivery pipe switching solenoid valve is opened after stopping the diesel engine, the pressure of the vapor phase in the fuel tank is transmitted into the fuel gallery and the residual DME fuel is forcibly delivered under pressure.

47. (Added) A DME fuel supply device for a diesel engine by which DME fuel is supplied from a fuel tank to a fuel gallery via a feed pipe and then to a fuel injection nozzle of the diesel engine, comprising:

- a supply fuel cooling unit for cooling the DME fuel flowing through the feed pipe with a cooling cycle using the DME fuel as coolant;

temperature detecting means for detecting the temperature of the DME fuel in the fuel gallery; and

a supply fuel temperature control section for controlling supply fuel cooling unit to control the temperature of the DME fuel flowing through the feed pipe so that the temperature of the DME fuel to be delivered to the injection pipe can be constant based on the temperature of the DME fuel in the fuel gallery detected by the temperature detecting means.

48. (Added) A DME fuel supply device for a diesel engine for supplying DME fuel from a fuel tank to an injection nozzle of the diesel engine via a fuel gallery, including: a cam chamber having an exclusive lubricating system which is separated from the lubricating system of the diesel engine;

an overflow fuel pipe for returning the DME fuel overflowed from the fuel gallery to the fuel tank;

a nozzle return pipe for delivering the DME fuel overflowed from the fuel injection nozzle to the overflow fuel pipe;

residual fuel retrieving means for retrieving the DME fuel remaining in the fuel gallery, the nozzle return pipe and the overflow fuel pipe after stopping the diesel engine into the fuel tank;

the DME fuel supply device comprising:

an oil separator for separating the DME fuel leaked from the fuel gallery into the cam chamber and mixed in lubricating oil;

a compressor for pressurizing the DME fuel separated by the oil separator and delivering it to the fuel tank;

a low-pressure tank disposed between the oil separator and the compressor;

a purge pipe for communicating the low-pressure tank and the overflow fuel pipe; and

a purge pipe switching solenoid valve for opening and closing the purge pipe.

49. (Added) A DME fuel supply device for a diesel engine for supplying DME fuel from a fuel tank to an injection nozzle of the diesel engine via a fuel gallery, including: a cam chamber having an exclusive lubricating system which is separated from the lubricating system of the diesel engine;

an overflow fuel pipe for returning the DME fuel overflowed from the fuel

gallary to the fuel tank; a nozzle return pipe for delivering the DME fuel overflowed from the fuel injection nozzle to the overflow fuel pipe;

residual fuel retrieving means for retrieving the DME fuel remaining in the fuel gallary, the nozzle return pipe and the overflow fuel pipe after stopping the diesel engine into the fuel tank;

the DME fuel supply device comprising:

an oil separator for separating the DME fuel leaked from the fuel gallary into the cam chamber and mixed in lubricating oil;

a compressor for pressurizing the DME fuel separated by the oil separator and delivering it to the fuel tank;

a low-pressure tank connected to a suction port of the compressor;

a purge pipe for communicating the low-pressure tank and the overflow fuel pipe; and

a purge pipe switching solenoid valve for opening and closing the purge pipe.